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A CASE OF ECTROPION TREATED BY TRANSPLANTATION OF A LARGE FLAP WITHOUT PEDICLE.

BY O. F. WADSWORTH, M. D.

THE following case is one of deformity in consequence of a burn, successfully operated on by a method recently proposed and carried out by Mr. Wolfe, of Glasgow; a method which consists in the transplantation of a large piece of skin, without pedicle, upon the surface of a fresh wound. Mr. Wolfe published, in the *London Medical Times and Gazette*, June 3, 1876, a brief account of two cases of ectropion thus operated on. This method offers so important an improvement in our means of dealing with deformities resulting from cicatricial contraction following injuries that now, in its infancy, any instance of its successful application appears worthy of notice. It must prove particularly valuable in cases of destruction of part or the whole of the skin of the eyelids. At the worst, even if the transplanted skin should not live, the condition of the parts still remains as good as before the operation, while, on the other hand, if a flap taken from the neighboring skin sloughs, the effort of the surgeon has resulted only in rendering the deformity greater than ever. The face, on account of the great vascularity of its tissues, offers, of course, a specially favorable ground for the performance of the operation; whether it can be effectively employed in other parts of the body remains to be seen.

A healthy, well-grown girl of sixteen years, who had been burned on the left side of the face while an infant, was brought to me by her father in the latter part of July, 1876. A cicatrix, not generally very dense, involved all the skin in the vicinity of the left orbit. The left eyebrow, its hair follicles in part destroyed, was dragged downward so as to stand at a considerably lower level than the right; the upper lid was much shortened, and the lower so much pulled down that its conjunctiva was completely everted. On attempted closure of this eye a space remained open between the lids throughout their whole length, narrow at the outer part, but some 2″ in width between the puncta lachrymalia. There was moderate thickening of the conjunctiva of the lower lid thus continuously exposed. The cornea had continued normal.

July 30th, the patient having been etherized, an incision was made through the skin of the lower lid, parallel to, and 1½″ below the lashes. The inner extremity of the incision was just below the punctum, and it extended outward half an inch beyond the outer canthus. The tissues were dissected till the edges of the lid could be easily raised far enough to reach the upper lid and allow replacement of the everted conjunctiva. Then the two lids were fastened together by four sutures passed through their free edges. This left a raw surface 1⅝″ in a horizontal, and ⅝″ in a vertical direction at their widest part. Next, a portion of skin was removed from the inner side of the fore-arm, about 2½″ by 1¼″ in size. This was dissected off as cleanly as possible, to avoid the presence of subcutaneous connective tissue, and after separation was laid with its inner surface upward across the fingers of the left hand, while a few shreds of connective tissue still adherent were removed with curved scissors. Its inner surface, thus prepared, was quite as pale as the outer, very nearly smooth, dotted with minute depressions filled with fat cells, and recalled in some degree the appearance of the outer surface of a side of sole leather. It was scarcely ′ in thickness. The shrinkage on removal was very considerable, ble, and the detached skin when spread out on the clean, raw surface of the lid was barely more than sufficient to cover it easily. At this part of the operation a little difficulty was experienced, since the thin layer of skin tended to roll in on its under surface, and to obviate this tendency, at one point just below the outer canthus, where the surface of the wound made a double curve, two fine sutures, $\frac{3}{16}$″ apart, were placed. Gold-beater's skin was laid over the lids and covered by thick layers of cotton-wool secured by a flannel bandage. The sound eye was also bandaged to secure immobility. The edges of the wound in the fore-arm were dissected up and brought together.

The dressing was not disturbed for forty-eight hours. At the end of that time the bandage and cotton-wool were removed. Through the transparent gold-beater's skin it was seen that the outer two thirds of the transplanted piece lay quite smooth, its color normal, and its edges in exact juxtaposition to those of the surrounding skin, while only a thin, dark line marked the boundary between them. There appeared to be absolutely no swelling. The inner third of the graft was somewhat uneven, and the inner two of the sutures intended to hold the lids together had broken away and allowed the lower lid to fall down a little. Some mucus and tears had run out from the conjunctival sac and smeared the innermost portion of the graft and the skin about it. To remove the mucus a part of the gold-beater's skin was cut away and the skin washed with a weak solution of carbolic acid. A little cotton moistened with carbolic-acid solution was laid over the inner canthus, and the packing and bandage were renewed.

The next day the graft was everywhere in good condition. Even at the inner corner, where its edge was a little raised and at first appeared unattached, a minute fragment snipped off with scissors seemed alive. Cleansing and packing were repeated daily. The gold-beater's skin was removed on the fifth day after the operation, the bandage was omitted, and the sutures holding the lids together were removed on the eighth day. The graft was now everywhere firmly united, although furrowed horizontally along its entire length by a shallow fold.

On the tenth day I found the edges of the graft at some spots a little thickened and paler, and feared suppuration might be taking place beneath, but this proved to be only the commencement of a throwing-off of the horny layer of the epidermis, the same process as is well known to occur in the ordinary minute skin grafts. It was five or six days later before the horny layer was thrown off over the whole surface.

The girl was sent home eighteen days after the operation. Union was everywhere perfect, the ectropion completely relieved, and the dragging

down of the brow considerably lessened, but still the lids could not be brought quite together over the inner half of their length. The graft then measured $1\frac{3}{8}''$ by $\frac{3}{8}''$.

Four months from the time of operation the patient was seen again. The ectropion was still entirely relieved, and she had been able to attend school regularly without inconvenience, though the lids hardly closed as much as at the time she went home. The engrafted skin had become a little narrowed at its inner end perhaps, but it yet measured $1\frac{3}{8}''$ in length and $\frac{3}{8}''$ in width at the widest part. It showed but little difference of level from that of the surrounding skin. The day was cold, and the new skin appeared considerably paler than the skin about it; this paleness, as was to be expected, was stated to be more marked on exposure to cold, but to be gradually becoming less noticeable.[1]

The shrinkage of the thin layer of skin removed to form the graft

[1] The cuts were made from photographs taken the one immediately before, the other four months after the operation. The size of the photographs was not exactly the same, but it was thought best to reproduce them as they were.

was decidedly greater than that which occurs in the flap of much greater thickness and retaining its connection by a pedicle, which is ordinarily employed in plastic operations, and this fact should not be lost sight of in estimating the size of the flap to be taken. How large a surface may be successfully covered by this method at once can be determined only by experiment. The surface covered in the case reported was larger than that in either of Wolfe's cases; in each of those it was about the same size and somewhat less in length than the free border of the lids. If the attempt were made to cover a much larger surface at one operation it would probably be better to apply more than one graft, both on account of the greater convenience this would give of obtaining sufficient skin for the purpose, and because the difficulty of getting the thin graft to lie flat must increase with its size.

Wolfe took the precaution to set the flap so that the edges of the surrounding skin overlapped it and answered the purpose of stitches. The experience of the above case shows that such a procedure is evidently unnecessary, and certainly if employed here, union at the edges could not have taken place so readily and evenly. Of course the surface laid bare should be made as smooth and clean as possible, and hæmorrhage from it should be checked before the graft is placed in position.

But is it absolutely necessary that the transplanted material should be so thin and so carefully freed from all subcutaneous tissue? Wolfe was led to think so from observing the behavior of flaps in which connection was retained by a pedicle, where the operation was only partially successful. The occurrence of serous discharge and suppuration in such cases he regarded as the result of an effort to throw off the connective tissue previous to adhering. This consideration is not, however, convincing. A stronger argument is found in the fact that in his first case, in which the flap was divided into three pieces, one piece, supposed to have been sufficiently freed from connective tissue during removal, was placed in position without farther preparation and in great part sloughed, while the other two pieces, from which the connective tissue was carefully cleared after their removal, lived. Moreover, experience has shown the successful application of minute skin grafts to be dependent on their freedom from subcutaneous tissue. More evidence is desirable definitely to settle the question.

PAIN AS A SYMPTOM IN FACIAL PARALYSIS, AND ITS CAUSE.[1]

BY S. G. WEBBER, M. D.

When describing facial paralysis many or most authors make no mention of pain as an accompanying symptom, unless it is stated that

[1] Read before the Boston Society of Medical Sciences.

sensation is not affected. Erb, in Ziemssen's Cyclopædia, mentions that there may be a complication with diminished sensation in the region of the fifth nerve. He also mentions neuralgic pain as a prodrome, and pain in the region of the ear and that half of the face affected, sometimes hours or days previous to the paralysis, as was seen in one of the following cases. (Case V.) But he does not mention that pain is a frequent accompaniment of facial paralysis which sometimes does not appear until after the paralysis.

In more than half the cases of rheumatic facial paralysis which I have seen, this symptom is mentioned. I have seen but one case of traumatic facial paralysis, following a blow on the side of the head; in that case pain was not mentioned. Instances of paralysis from diseases within the cranium would hardly come within the design of this article.

A brief review of several cases will show the nature of the pain, its distribution, and its relation to other symptoms. Unfortunately, many of the cases were imperfectly examined in regard to taste, salivary secretion, and hearing.

Case I. Miss F., about three weeks before I saw her, was exposed to a draught of air in the cars. The next morning on waking she found the left side of her face paralyzed. This was a characteristic case with loss of reaction to the faradic current, reaction retained for the galvanic current; the muscles responded to five or eight cells, the facial nerve slightly to ten cells; no diminution of hearing, no diminution of sensation; taste about equal on the two sides; the right pupil reacted to light better than the left. For two or three days after the origin of the paralysis there was pain in the left ear. This pain was not severe. The patient attended only a few times, but I subsequently learned that there was much improvement, though not complete recovery.

Case II. Mr. A. H. C. was never very strong. Three years before I saw him he was riding in a sleigh exposed to a cold, keen wind, in one of our western Territories. He was chilled, and caught a severe cold. He woke next morning with paralysis of the right side of his face. During the afternoon of the next day he had severe pain in the right jaw, which lasted a few days, diminished slowly, and finally disappeared. At times the pain extended over the whole of the right side of the head. When seen three years after, the right side of the face was completely paralyzed, no voluntary motion, the eyelid not fully closed, taste diminished if not lost on right side of tongue; when he winked, the right angle of the mouth was twitched up, and on closing the eye that angle of the mouth was drawn up. Watch was heard at two and one half feet on right, at eight feet on left. A very strong faradic current caused some motion of the muscles on the right (which muscles moved is not stated); fifteen to eighteen cells caused a slight motion on right and much stronger action on left.

Case III. Mrs. T. gave the usual history of paralysis on the right side after riding in the wind. There was pain on the right side behind the ear, which streamed up to the eye and down the neck and along the lower jaw; this pain continued more or less for a fortnight. For several days the teeth on the right side ached. There was a tender spot behind the ear. There was in this case a slight loss of sensation on the right side. Over the malar bone two points were recognized at half an inch on the left, and only when an inch apart on the right; over the lower jaw at half an inch on the left, and only when three fourths of an inch or more distant on the right.

The patient said the tears did not flow from the right eye, and the right nostril did not discharge mucus; there was dryness and canker on the right side of the tongue; the taste was not noticed to be deficient by patient.

All the muscles of the right side of the face failed to respond to the faradic current. When the galvanic current was used the muscles reacted to fifteen cells; the nerve reacted to twenty cells, which caused the muscles at the angle of the mouth to move. Mrs. T. called but a few times at first, as she was then out of town and the trip to the city was too fatiguing. Subsequently she was seen again, and improved very much under electrical treatment.

Case IV. Mrs. J. J. B. was sent to me by Dr. Edson of this city. She was confined early in November, lost considerable blood, and nursing was a severe tax. Four weeks after confinement the left side of her face was paralyzed, and this paralysis slowly increased until at the end of the third day it was at its full development. There was severe pain behind the ear and running down the neck to about the angle of the jaw, which continued ten days. Sensation was somewhat impaired. When seen there was total paralysis of the muscles of the left side of the face; there was no affection of taste; the palate was straight, and the watch was heard at five feet with the right ear, and at ten feet or more with the left ear. The faradic reaction was entirely lost on the left. The galvanic muscular reaction was exaggerated on the left for the muscles about the mouth. A little more than two months after the origin of the paralysis the nerve reacted to thirteen cells, and a few days later voluntary control was regained to a slight degree, and the muscles of the lower part of the face responded to the faradic current.

Case V. Mrs. H. was sent to me by Dr. C. J. Blake. She had had severe pain in the left side of her face, especially in and behind the ear. There had been tender points over the mastoid, also at each point of exit for the branches of the fifth nerve. There was at first diminished sensation over the parts where pain was felt, later hyperæsthesia. After this she found in the morning that she could not shut the left eye, and the face was drawn to the right. When seen two weeks after the

origin of the paralysis, the pain still persisted, at times so severe as to prevent sleep; there was a tender spot behind the ear at the point of exit of the auricular nerve. The eye was only partially closed; the whole of the left side of the face was paralyzed. The faradic current caused the orbicularis palpebrarum to contract, but all the muscles about the mouth did not respond. The reaction to the galvanic current was perhaps slightly diminished, but a few days later was increased. The power of the will was nearly recovered in ten days, and then the galvanic current applied to the facial nerve caused the muscles to contract.

It is evident that in this case all the fibres of the seventh nerve were not equally affected, for some lost their reaction to the faradic current, and others, while paralyzed, still retained that reaction. In this respect there is a resemblance to the case reported by Bärwinkel.

Several points of interest in these cases must be passed without comment: as variations in hearing between the two ears, the condition of the sense of taste, and the change in reaction to the faradic and galvanic currents while the patients were under treatment. The object of this paper does not include these subjects.

These cases are sufficient to illustrate the point under consideration, and are the only ones where the nature and the seat of the pain were accurately recorded; in others the report is indefinite.

As to the cause of this pain, it is quite possible that the fifth nerve in passing through the foramina to reach the face should be affected similarly to the facial, and this was probably so in Case III., where there was diminished sensation over the malar bone and over the jaw; perhaps the same is true of Cases IV. and V., where the physicians stated that there had been some defect in sensation, without specifying exactly the region affected. In such cases there would be a combined rheumatic affection of the facial nerve and certain branches of the fifth pair; but this explains only a few cases, since many times the pain has been confined to regions not supplied by the trifacial, or at most supplied by that in common with other nerves. In seeking for an explanation of the distribution of the pain, and in deciding whether a rheumatic affection of the facial alone will explain it, we must notice the anastomoses of that nerve. These are numerous; the anastomosis with the auditory nerve would not give the facial any sensory fibres; next is the greater superficial petrosal nerve, which unites the ganglion geniculatum of the facial and the spheno-palatine ganglion. In this nerve are found motor fibres which pass to the muscles of the soft palate, also probably sensory fibres of taste which pass from the fifth to the seventh, subsequently to return by the chorda tympani; it is quite possible also that fibres of common sensation pass from the fifth to the seventh, though this is not proved. Next is the anastamosis with the

tympanic plexus; this plexus receives branches from the carotid plexus, from the otic ganglion and from the glosso-pharyngeal nerve. It is impossible to decide as to the direction or nature of the fibres passing through this anastomosis. The chorda tympani unites the facial with the third division of the fifth; the fibres for taste pass through this from the facial to the tongue; it is also probable that a few motor fibres pass from the facial to the muscles of the tongue; secretory fibres pass from the facial through the chorda to the submaxillary and sublingual salivary glands; it is improbable that fibres of common sensation pass from the fifth through the chorda to the facial. Just before its exit from the stylo-mastoid foramen the facial receives an anastomotic branch from the auricular nerve, which is a branch of the pneumogastric, and passes through a canal in the temporal bone crossing the facial nearly at right angles. By this anastomosis it is almost certain that the facial receives sensitive fibres. The auricular nerve, after leaving the mastoid canal, forms another anastomosis with the posterior auricular of the facial. After leaving the stylo-mastoid foramen the facial sends a branch which anastomoses with the glosso-pharyngeal, but whether it receives sensitive fibres or merely gives motor fibres to the branch of the glosso-pharyngeal to which it sends its anastomosis is not certain. On the cheek near the anterior border of the ascending ramus of the lower jaw an anastomosis is formed between the branches of the facial and the auriculo-temporal, a branch of the third division of the fifth. The terminal branches of the facial and the fifth frequently anastomose with each other; there are also anastomoses with the branches of the cervical plexus.

Of these various anastomoses, those which are the most important as possibly contributing to the supply of sensitive fibres to the facial are the greater superficial petrosal and the auricular nerves, especially the auricular. This latter nerve is a branch of the pneumogastric which arises from the jugular ganglion or from the trunk of the nerve just below, receives a small branch from the petrosal ganglion of the glosso-pharyngeal, and enters the mastoid by a special canal. This canal crosses the Fallopian aqueduct nearly at right angles, and at the point of crossing the auricular and facial form an anastomosis. The terminal branches of the auricular are distributed to the external auditory meatus and to the auricle. Another anastomosis with the facial is also found near the exit of the auricular from the mastoid process.

It will be seen then that the facial nerve receives sensitive fibres while it is still within the bony canal, and it is not at all surprising that the same rheumatic swelling which causes the paralysis should also give rise to pain. In studying the distribution of this pain the anatomy of the auricular nerve is especially important. In Cases I. and V. the pain was in the ear; in Cases I., III., IV., and V., behind the ear; in Cases

II., III., and IV., along the lower jaw; in Case III. it streamed up to the eye, and in Cases II. and V. the whole of the side of the face was at times affected. In most of the cases the pain was in the ear and behind the ear, the regions to which the auricular nerve is distributed; and in Cases III. and V. there was a tender spot behind the ear at the point of exit of the auricular nerve.

The anastomosis of the auriculo-temporal nerve with the facial occurs only after the division of the latter nerve external to the stylo-mastoid foramen. The lower of the three branches of the facial is not a factor in this anastomosis. The sensitive portion of this lower branch must then be derived either by sensitive fibres turning back at sharp angles and then taking another turn, or it must come from a previous anastomosis. The latter is more probable, especially as the lower border of the ramus and the angle of the lower jaw does not receive sensitive fibres from the fifth. Thus the pain along the lower jaw in Cases II., III., and IV. would be explained by the implication of the auricular before sensitive fibres are given to the facial, or by an affection of the latter after receiving such fibres. In no case was pain referred particularly to the front of the ear alone.

The cases in which more extensive pain was felt may have been, as already suggested, due to an affection of the fifth nerve in its foramen. There is, however, another explanation which might be true in some cases. The auriculo-temporal nerve passes round the neck of the jaw, between it and the stylioid process, and it is only slightly separated from the facial nerve. The same influence which caused a rheumatic affection of the facial might act upon this nerve and so cause pain in the side of the face. It is almost an every-day occurrence to notice that in case of severe pain the sensation is not limited to the region of the nerve affected but is referred to other parts in the vicinity; hence a referred or reflex sensation of pain may explain the general headache of which patients sometimes complain. Inasmuch then as pain in all these cases was felt in the region over which the auricular nerve is distributed, as in two cases there was a tender spot at the point where this nerve makes its exit from the mastoid process, and as this nerve passes through a bony canal which communicates with the canal through which the facial passes, it is reasonable to conclude that the same lesion which causes the facial paralysis causes the pain; sometimes the rheumatic swelling commences in the sheath of the auricular; then pain is the first symptom, as in Case V. Sometimes the facial is first affected; and in either case the lesion extends by contiguity to the other nerve, or both may be affected simultaneously.

SCARLATINA COMPLICATED WITH TYPHLITIS; FATAL ON THE SEVENTH DAY.[1]

BY C. ELLERY STEDMAN, M. D.,
Visiting Physician, Boston City Hospital.

J. G. B., house physician, City Hospital, twenty-one years old, with the exception of scarlet fever when eight years of age, had never been ill. He had been working hard since July, and went to the Centennial at Philadelphia in October, since which time his attention to his duties was unremitting, and he began to wear a somewhat tired look, although his health was vigorous. Several cases of scarlet fever had been treated in the isolating wards, and a fresh one came under his charge about a week before his illness. Another interne who had never had scarlatina was exposed like himself, but was in bed only twenty-four hours with a slight pharyngitis and a doubtful eruption.

On December 2d, Mr. B. complained of headache, severe backache, sore throat with some dysphagia, anorexia, chilliness, and general malaise. He kept about his duties with difficulty. His expression was dull, the fauces were congested, and at night all the symptoms were aggravated.

December 3d. Though feeling worse he persisted in making the morning visit, after which he was compelled to go to bed; he did not vomit, but the throat was much sorer, and at night his temperature was 103.8°; pulse, 105.

December 4th. Throat felt very sore, much dysphagia, nasal passages nearly occluded. Tongue moist, red, with prominent papillæ at tip, and white coat posteriorly; the whole throat very red, and mucous membrane swollen; a punctated redness around and upon the uvula; abundance of stringy mucus on tonsils and pillars of fauces, which had also a filmy coat like that of early diphtheria. There was also considerable mental dullness when not aroused, and some abdominal pain referred to the umbilical region, which he considered to be due to constipation during the previous three days. His bowels had always acted with perfect regularity. There were several attacks of epistaxis during the day. A bright scarlet eruption appeared on the chest extending less thickly over the abdomen; none was seen upon the legs. Bowels moved by enema. Full doses of bromide of potassium failing to give sleep, morphia, gr. one eighth, secured it. Temperature, A. M. 99.7°; P. M. 101°. Pulse, A. M. 89; P. M. 72.

December 5th. Much more comfortable, general pains nearly gone. Throat less sore, skin cooler, pulse good, and everything promised a good result. Towards evening he began to have colicky pains around

[1] Communicated to the Boston Society for Medical Improvement, December 11, 1876.

the umbilicus for which laudanum stupes were applied, and relief not being obtained, morphia was given subcutaneously. Temperature, A. M. 99.7°; P. M. 101°. Pulse, A. M. 80.; P. M. 72.

December 6th. Slept well till two A. M., when he was aroused from sound sleep by severe pain in the umbilical region and right side, and required considerable morphia for relief. The pain persisted in varying degree all day. The pulse remained nearly normal, and the skin kept moist and cool. Towards evening the pain was almost wholly referred to the right iliac region and was very severe, all motion being painful. Decubitus on back with one or both legs drawn up; abdomen tender on pressure in the regions mentioned, soft and not tympanitic; much tenesmus, urine free and normal. The eruption appeared only on the surface covered by his undershirt. The countenance remained bright, and the patient said if it were not for the pain, he should feel "first-rate." He had taken sufficient liquid food, but now began to have nausea and vomiting. Enema with oil terebinth ʒij caused a small dark, offensive dejection. Pulse, A. M. 72; P. M. 78. Temperature, A. M. 98.7°; P. M. 100.7°.

December 7th. The pain during the night was so severe as to require several doses of morphia. Strawberry tongue; pulse, of good strength. Took less nourishment as the nausea became troublesome, lime-water and milk being most acceptable. The eruption diminishing on trunk, showed slightly on the legs and feet; the patient ceased to complain of the throat, and lay on the back with his legs drawn up; towards night the abdomen grew tympanitic, and had a board-like feeling. He breathed with difficulty because of pain in the right hypochondrium, and was greatly annoyed by hiccough and eructations. The nausea was somewhat relieved by sinapisms to the epigastrium. Urine free; specific gravity 1031; urea much increased; no albumen. Temperature, A. M. 100.9°; P. M. 104°. Pulse, A. M. 90; P. M. 98.

December 8th. After full opiates he slept most of the night, waking at times. This morning, when Dr. Lyman and I visited him, his features were pale, sunken, and pinched; he answered questions clearly, but took little notice if not addressed. The pulse was thready, 120. Temperature 100°. He had hiccough, eructations, and vomiting of grumous matter. At six P. M. it became difficult to count the pulse. The pain was not so much complained of when I saw him at about this time. Subcutaneous injections of brandy were ordered, under which the pulse rallied for the next hour or so. I was summoned again about nine o'clock to find him moribund. He had become delirious, and then comatose. The urine had been scanty during the day, and in the afternoon had to be drawn by catheter. The quantity was twelve ounces, of strong odor, high color, specific gravity 1031; albumen, two per

cent., with large zone of urates; urea greatly increased; abundance of epithelial casts. He steadily sank, and died at 11.20 P. M.

The above account is from notes furnished by Dr. C. W. Brown, ophthalmic interne, and Mr. B.'s faithful attendant.

Autopsy, by Dr. W. P. Bolles, twelve hours after death. The abdomen only was opened. There was a small quantity of purulent fluid in the peritoneum, and there was recent inflammation of a portion of the peritoneum having its origin at the appendix cæci. It extended over most of the right side of the abdominal cavity, was generally slight, with a very thin film of exudation, but at the cæcum it was very marked, with much adhesive fibrin, the adhesions being about as hard as cheese; the surface was reddened, and the sub-serous tissues were œdematous. Portions of the small intestines touching these places were inflamed, while the neighboring coils not so touching were free. The appendix cæci was adherent, much enlarged and thickened, black and dilated. It contained an oval concretion slightly larger than a cherry-stone, with two or three smaller ones. Its canal was large enough freely to admit this body. The concretion was of a yellow-ochre color, rather hard, and apparently composed of a number of layers. The small intestine, just above the cæcum, contained four or five hard, yellow masses, of little fæcal odor, looking somewhat like curdled milk or cheese. Of these the largest was as large as a black walnut, the smallest no larger than a filbert, and of this size there were more just at the entrance of the valve and small enough to just go through it. The largest would have had some difficulty in doing so.

The kidneys were rather large, with marked cloudiness of the cortical portion, and slight redness of the cones, but they were not nearly so red as the scarlatinous kidney should be. The spleen was soft, the liver and other organs normal.

The uncommon occurrence of typhlitis in the course of another acute disease has led me to give perhaps too full a record of the symptoms. How long the concretion had been lodged in the appendix is uncertain, but its appearance did not indicate a recent formation. The scarlatina was progressing most favorably when the peritonitis was suddenly developed and caused a fatal prognosis, only too soon verified.

It will not be considered impertinent if I close this paper by recording the high estimation in which Mr. Bridgham was held by all who knew him, and the loss the profession has sustained in his early death at the post of duty. It is common to say of those who die young that they were youth of rare promise. In Mr. Bridgham's case this is no unmeaning eulogy. If zeal, judgment, and accuracy like his, while gaining esteem from one's peers, do not always command success in practice as they ought, he would have been aided by his manly and cheerful address, his sympathy with suffering, and firmness in its relief. His

tact and willingness made the course of his hospital duties run smoothly, and his bright face is sorely missed in the wards. Conscientiousness and fidelity won the appreciation of his teachers and employers, and, with his high Christian character, endeared him to us all.

RECENT PROGRESS IN SURGERY.[1]

BY J. C. WARREN, M. D.

Excisions of the Shoulder-Joint for Gunshot Injury.[2] — Preceding the section of Dr. Otis's valuable work devoted to this subject is an interesting account of five hundred and five cases of shot fractures of the shoulder, treated on the expectant plan. The small mortality of less than one third is accounted for by the fact that the cases of least severe injury were selected for this mode of treatment. Dr. Otis says, "While the opinion offered in my preliminary report of 1865 may have been expressed too emphatically, as deduced from insufficient data, it may still be held that the proportion of cases of shot fracture at the shoulder in which an expectant treatment is expedient is comparatively small, and that recourse should generally be had to excision, unless concomitant injuries of the blood-vessels or nerves, or extended lesions of the soft parts or of the shaft of the humerus, render amputation imperative.

There were eight hundred and eighty-five cases of excision at the shoulder reported, and the results as to fatality have been ascertained in all save nine. There were fourteen cases of partial excision of the head of the humerus, with one death. The results showed the comparative safety of free openings into the shoulder-joint after shot injury, but do not prove that when the head of the humerus is grazed or grooved by a ball it is safer to slice off the injured portion rather than to decapitate the bone. Anchylosis was too frequent to permit much to be said in favor of partial excisions in this region. A useless arm is recorded in seven instances. The results of intermediary decapitations of the humerus were found to be much less satisfactory than primary operations; of one hundred and seventy-five of the latter, fifty-six died; of the former, twenty-one out of fifty-five survived. The mortality was twelve per cent. greater than in secondary operations which were attended by better results than all the other varieties of operations.

Of excisions of the head and portions of the shaft of the humerus there were five hundred and seventeen cases. The two hundred and ninety-three cases of primary excision gave a mortality of 27.3 per cent. In the one hunded and fifty-five cases of intermediary excisions there was a mortality of 41.2 per cent. There were fifty cases of sec-

[1] Concluded from page 733.

[2] The Medical and Surgical History of the War of the Rebellion. Part II. Vol. II. George A. Otis, M. D. Washington. 1876.

ondary excisions of this class with a fatality of twenty-four per cent. Of the whole eight hundred and seventy-six cases of excision in which the result was known there was a mortality of 34.8 per cent.

In the Franco-German the mortality of this operation among the Germans was thirty-eight per cent. and among the French 62.5 per cent. The number of cases in both these instances was much smaller than in our war. Apart from those given in the surgical history of the war there have been collected but three hundred and ninety-eight cases of excisions at the shoulder for shot injury. The recoveries were somewhat more than sixty per cent.; 36.6 per cent. of the excision on the right side died, while 29.8 per cent. of the excision on the left side proved fatal. These results are not in accordance with the inference of Esmarch that "the operation on the left side seems to give less favorable results than on the right."

There was a steady increase in the relative frequency of excisions of the shoulder as the war progressed, and the surgeons acquired experience. The utility of the limb after this excision for shot injury is stated by Dr. Otis to be generally less than is recovered in some instances of anchylosis after disease, though greater than might be inferred from the reports of the pensioners.

The anterior longitudinal incision was the favorite procedure in operating. There were no reported instances of real sub-periosteal excisions, nor any examples of reproduction of bone to any great extent. The necessity for amputation after excision seldom arose. Among the conclusions drawn by Dr. Otis in regard to gunshot injuries of the shoulder we may notice the following: (1.) In slight shot injuries of the shoulder-joint an expectant conservative treatment is justifiable. (2.) If the ball is impacted in the head of the bone, or if the epiphysis is much comminuted, unless there is injury to the blood-vessels and nerves, or very grave injury of the other soft parts, primary excision should be practiced. (3.) Concomitant fractures of the acromial end of the clavicle, or of the neck or processes of the scapula, or of the upper third of the humerus, do not necessarily contra-indicate excisions at the shoulder.

Excisions at the Elbow-Joint for Shot Injury will be considered in a future report.

Excisions at the Wrist for Shot Injury. — Ninety-six such operations were returned, and are distributed into subdivisions according to the part excised. Six cases are described as total excisions or extirpations of both rows of carpals with resection of the distal ends of the radius and ulna. Ninety partial excisions consisted in the removal in whole or part of one or more of the bones entering into the carpal articulation. Fifteen cases, or 15.6 per cent. resulted in death, — a higher mortality-rate than was observed in amputations in the fore-arm for shot

injury in general, but not much greater than the death-rate in amputations in the fore-arm on account of shot fractures at the wrist.

Of the six complete excisions at the wrist, one proved fatal after recourse had been had to amputation in the fore-arm. The five others recovered with the function of the hand much impaired, but, all things taken into consideration, in a better condition than if they had been subjected to amputation. Of the ninety partial excisions, twenty-one in whom the hand was preserved, nearly all recovered with anchylosis and extreme deformity. Generally the hand was strongly deflected to the radial side, often at right angles, the fingers rigidly fixed in flexion or extension, the end of the ulna projecting, and the integument over it irritable and exposed to accidental injuries; yet two of the men re-enlisted, and in several the deformed hand appears to have been preferable to any prothetic appendage. There were no such triumphs as were achieved in excisions at the shoulder, and, in less proportion, at the elbow, yet the mortality attending the excisions was not excessive, and the results in a few of the cases not altogether unsatisfactory. Dr. Otis states that "the first total excision of the wrist-joint was performed in about 1800 by the younger Moreau." Fergusson and others brought about a sort of revival of the procedure in cases of caries in young subjects, but reported rather unfavorably as to its utility, and the general verdict of systematic writers was that the results were discouraging. The methods employed involved great injury to the tendons and frequently to the blood-vessels and nerves. Such were those employed during our war. Dr. Otis thinks the plan devised by Lister in 1864 "as revolutionary in this branch of conservatism as his celebrated antiseptic method is likely to prove in the entire domain of operative surgery." Dr. Otis concludes this section with the following remark: "But the question whether the wrist-joint from its complexity is altogether unfitted for the favorable performance of excision for injury is still not fully elucidated."

The mine of valuable facts, contained in this work, bearing upon some of the most important problems of modern surgery can be fully appreciated only by those who compare the work here accomplished with the annals of all military surgery. The vast material here accumulated gives an adequate idea of the scale on which our war was carried on. Too great credit cannot be awarded to Dr. Otis for the skill with which he has handled so huge a subject.

Popliteal Aneurism cured by the Application of Esmarch's Bandage. — Dr. Walter Reid reports a case of popliteal aneurism of three weeks' standing cured in this manner.[1]

The aneurism was of considerable size, and occurred in a healthy

[1] The Lancet, September 25, 1875.

seaman of middle age. After numerous attempts with various forms of compression which failed to arrest the pulsations, Esmarch's bandage was applied to the whole limb, the aneurism being passed over lightly. The limb assumed a death-like pallor, and its temperature diminished. The aneurism remained of its usual size but was pulseless. The elastic tubing was removed at the end of fifty minutes and a Carte's compressor was substituted. On raising the latter a few minutes later no pulsation was detected. Light and intermittent compression was continued during that day and the next. The pulsation did not return. Dr. Reid suggests that "the loss of temperature, and that particular condition of the tissues closely allied to death may have had some effect in the formation of the coagulum." The use of Esmarch's bandage in a case of necrosis, when the operation had lasted over an hour without evil result following, had suggested to him the practicability of the application of this bandage where it was necessary to arrest the circulation for a considerable length of time.

Another case treated in the same way occurred under the care of Mr. Wagstaffe at St. Thomas's Hospital.[1] A barman, aged thirty-two years, when pushing a heavy cask some five months previously, had felt "something snap" in his right popliteal space. On admission there existed a pulsating tumor at that point two inches long, filling the upper half of the space, terminating opposite the junction of the femur with the tibia, together with considerable œdema of the leg. An Esmarch's bandage was applied tightly over the foot and leg up to the lower border of the popliteal space, carried lightly over the tumor (a thin layer of cotton-wool intervening), and then continued tightly over the thigh to within three inches and a half of Poupart's ligament. The bandage was left on for one hour, during which time the patient was very restless and complained of pain. One third of a grain of morphia was given subcutaneously. At the end of this time a tourniquet was placed on the femoral artery, and Esmarch's bandage removed. A second tourniquet alternated with the first, and pressure continued for twenty hours; pulsation had ceased at the end of two hours and did not recur after the tourniquet was finally removed.

Extirpation of the Larynx. — Dr. Maas[2] performed this operation in a case of cancer of the larynx of nine months' duration. Tracheotomy had been performed previously owing to difficulty of respiration. The various steps of the operation were: incision on the median line exposing the larynx; section of the hyo-thyroid and hyo-epiglotidean ligaments after the larynx had been peeled out from its bed on each side by a periosteum elevator; next, separation from the œsophagus; and finally from the trachea close to the cricoid cartilage. The opera-

[1] The Lancet, September 30, 1876.

[2] Langenbeck's Archiv, xix. 3. Wiener medizinische Presse. October 1, 1876.

tion lasted one hour. The wound was plugged with cotton-wool. The patient rallied well from the operation, and on the ninth day was able to leave his bed, but on the twelfth day he had a chill, and died of pneumonia on the fourteenth day. The operation was performed at the residence of the patient. To prevent the flow of blood into the trachea a footstool was placed under the patient's back, thus directing the flow of blood towards the head. A rubber tube was kept permanently in the œsophagus for the purpose of feeding the patient, and caused no discomfort. The reporter to the *Wiener Presse* states that this operation has been performed seven times, with three deaths.

PROCEEDINGS OF THE NORFOLK DISTRICT MEDICAL SOCIETY.

ARTHUR H. NICHOLS, M. D., SECRETARY.

The quarterly meeting of the society was held in Bradley's Building, Roxbury, Tuesday, November 14th, the president, Dr. John P. Maynard, in the chair. Present, forty-eight members.

Intussusception: Separation and Expulsion of a large Portion of the Ileum: Recovery. — Dr. Edwin P. Gerry, of Jamaica Plain, reported a case of the above-mentioned lesion of extreme rarity and interest. The patient was a man, aged seventy-one years, and when first seen, June 29, 1876, complained of pain in the abdomen, referred to a point two inches below the umbilicus. It was ascertained that for three days previous to this attack he had experienced colicky pains, on account of which Epsom salts had been resorted to with good effect. In the course of a few hours the symptoms became aggravated and alarming, and of a character to leave but little doubt as to the existence of intestinal obstruction. Copious enemata were now administered, and the patient, having had a free action of the bowels and having vomited several gallons of a reddish-brown liquid, appeared to obtain complete relief.

The obstruction once relieved, he continued to convalesce favorably upon a stimulating liquid diet until July 9th, when he experienced another ill turn, characterized by cold hands and feet, and a feeling of general malaise. This passed off, however, and he continued to gain until July 16th, sixteen days after the original attack, when an elevation of temperature was observed with accelerated pulse, which continued until the 21st. At no time, however, was the rate of the pulse above 80, and the highest temperature recorded was 102.8° F.

Upon the morning of the 21st, three weeks after the first illness, there was expelled per rectum a portion of the small intestine measuring *seventeen and one eighth inches* in length, forming probably that part of the ileum lying immediately beneath the umbilicus. The specimen was displayed by Dr. Gerry. It exhibited throughout traces of the exudation of lymph, and at the points of separation looked gangrenous and worm-eaten. From the circumstance that the specimen, when expelled, was not inverted, Dr. Morrill Wyman (who,

among others, had seen the case in consultation) had concluded that the intussusception might have been upwards.

After the expulsion of the intestine, the patient had a free dejection. His appetite returned, and he continued to improve until August 4th, upon which day abdominal pains set in, accompanied by tympanites, so great as to induce dyspnœa. Relief was afforded, however, in the course of a few hours, after considerable thick liquid had been thrown up, coming apparently from the stomach and upper part of the small intestine. The vomiting, which supervened at this time, continued subsequently to constitute the prominent symptoms. It has at times been excessive, the patient ejecting this liquid every few minutes for a period of forty-eight hours; while, at other times, the stomach has been able to retain the ingesta for one or two weeks. The usual quantity vomited at any one time was about a quart, but latterly the vomiting has been growing less and less severe. Dr. Gerry was inclined to attribute this obstinate symptom to the catarrhal condition of the bowel, the muscular fibres of which had been subjected to long-continued distention and relaxation by the accumulation of retained fæces. This relaxed portion of the intestine formed, when distended, a sort of pouch, which could be distinctly felt, adherent apparently at certain points to the walls of the peritoneum.

At the present time a distinct ring can be felt upon pressure, occupying the seat below the umbilicus to which the pain was originally referred. Dr. Gerry thought it remarkable that the process of separation of the invaginated intestine by the process of gangrene should have been attended by such comparatively trivial constitutional symptoms.

Dr. H. A. Martin, who had seen the case in consultation several times, from June 29th to July 15th, observed that he considered it one of the most remarkable in the history of pathology. The most striking and extraordinary features of the case were: —

(1.) The very great length of the invaginated intestine separated and expelled.

(2.) The absence of severe pain and stercoraceous vomiting.

(3.) The advanced age of the patient in connection with his survival of so grave a lesion.

Upon his first examination, on the first day of the illness (June 29th), he found on careful percussion of the abdomen a region of great flatness, corresponding in situation to the cæcum, and occupying about one fourth of the entire abdominal surface; one very limited portion of the region was tender, but not very materially so, upon pressure. This same spot was also the seat of continued slight pain and occasional severe exacerbations. This was the most prominent symptom, and the one for which the patient asked relief. It yielded promptly, however, to the hypodermic administration of morphia (gr. one sixth pro re natâ).

Dr. Martin suggested, moreover, the administration at short intervals of very copious enemata, with the view of distending the large intestine and thus relieving the invagination, provided that was the source of the trouble, and of dissolving the fæcal mass and facilitating its expulsion, if the obstruction was due to scybalous accumulation. Upon the next day, June 30th, the area of

flatness was unchanged. On the third day, however, July 1st, the flatness had entirely left the region of the cæcum, had been transferred to the other side of the abdomen, and was limited below by the sigmoid flexure, involving about the lower two thirds of the transverse and descending colon. In the light of subsequent developments, it would appear that there had been an intussusception of the small intestine through the ilio-cæcal valve, which with fæcal accumulation had given rise to the flatness at first noticed; and that the subsequent change of the area of flatness from the region of the cæcum to that of the colon, was attributable to the passage of the disentangled and perhaps distended intestine, with the fæcal mass, to the descending colon, at which point a second temporary obstruction was met with.

Although, at the outset, his prognosis had been hopeful, when, upon the third day the hands became cold, he could not but regard this significant symptom as pathognomonic of gangrene, and therefore of the gravest portent. The symptoms took a favorable turn, however, when affairs seemed the most desperate, and at the next visit, July 2d, the hands had become warm, pain and vomiting had ceased, while very large discharges of broken scybala had come away, and the patient seemed in every way so far on the road to recovery that Dr. Martin declined further attendance, except in the event of the return of bad symptoms. He was requested to visit the patient again in consultation, thirteen days after, July 15th, and found him doing very well, with a history since his previous visit of apparently good convalescence; and he did not consider the peculiar irregularity of the pulse first noticed during that period of any pathognomonic importance whatever.[1]

He certainly had abandoned all notion of intussusception in the case, and was amazed to hear that only a few days after the visit so large a portion of the intestine had sloughed, a process that must have occupied from two to three weeks, and had been evacuated.

Fracture of the Base of the Skull. — Dr. S. E. Stone exhibited a skull, having a fracture at its base, and interesting as involving rather a curious medico-legal question.

The skull, with the rest of the skeleton, was found near Mill Brook, in the northern part of Walpole, upon the 9th of July of the present year. It was lying within a few feet of the brook, but separated from it by a thick, hedge-like growth of bushes, under which it was partly concealed. The position of the skeleton was prone, with the right arm raised in advance of the head, which pointed towards the stream. The left arm lay under and across the body. The right leg was extended, and the left flexed beneath it. No part of the skeleton was below the level of the ground, and no stone or other hard substance could be found, with which the body could have come in contact in falling in such a manner as to produce the fracture. The body was without

[1] The pulse was of that description in which, without any other peculiarity, a beat is dropped at very regular intervals. All physicians of experience must have repeatedly seen cases in which this pulse (in the aged), habitual in health, becomes regular in sickness, the irregularity returning with convalescence.

clothing, with the exception of the feet, upon one of which was found a shoe and stocking, and upon the other a stocking only. The other shoe was found near the head, while the clothing lay mostly beneath the body. But little flesh was left upon the bones, and this was converted into adipocire. The locality where the skeleton was found was a most unfrequented spot, known to but few persons. The fracture extended from a point an inch to the left of the occipital protuberance, in a nearly straight line to the posterior condyloid foramen, and then at an oblique angle forward to the outer edge of the posterior foramen lacerum.

The question of the probable manner of production of the fracture was discussed at length. Two theories had been advanced to account for the injury. In accordance with one of these theories the fracture was produced post mortem, by the freezing of water within the skull. Another theory was that the fracture had been the cause of death. The latter view was favored by the speaker, who maintained that in the expansion of water by freezing force is exerted equally in all directions. Hence water confined within a skull would tend, by the process of freezing, to separate the bones at the sutures, and would not be likely to produce a fracture of a strong bone, like that exhibited in the specimen. He admitted, however, that the position of the skull when found would seem to favor in a measure the former theory. Dr. Stone said that he had brought the specimen to the notice of the society with the hope that others, who might have observed similar fractures of the skull, would express an opinion as to whether a homicide had probably been committed. He had not been able to find upon record any other case in which a similar doubtful point had been raised.[1]

TRANSACTIONS OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.[2]

The American Public Health Association, although it is as yet scarcely out of its infancy, shows so much vigor, we might almost say precocity, that if its life is spared and its constitution does not suffer through misadventure, it must assuredly do splendid work in leading public opinion in sanitary matters, and in formulating sanitary doctrines for the public instruction. It is emphatically a working body. Its membership is not numerous, yet its productiveness is astonishing. Its methods do not admit of holiday junketing, and indiscriminate feasting at its annual gatherings is held to be a hygienic abomination. Therefore its labors are characterized by a serious earnestness and a consistent regard for the high purposes of its organization.

A better illustration or demonstration of these features could hardly be found than in the volumes of Transactions issued by the association. The

[1] Subsequent to the meeting a second well marked fracture was detected by Dr. Stone, situated at the base of the mastoid process and extending into the auditory meatus.

[2] *Public Health: Reports and Papers (Volume II.) presented at the Meetings of the American Public Health Association in the Years* 1874 and 1875, *with an Abstract of the Record of Proceedings,* 1872–1875. New York: Hurd and Houghton. The Riverside Press, Cambridge. 1876.

second volume, just published, is in many respects superior to the first of the series. Judicious selection has been made of the best essays read at the Baltimore and Philadelphia meetings, and these chosen productions find a place in print. We heartily commend this plan for the survival of the fittest; for while the officers of the association undoubtedly make great efforts to maintain a high standard of work, it is difficult, especially in the early years of such an organization's existence, to subordinate quantity of product to quality. But if critical discrimination be applied to eliminate the unworthy work and to preserve the best, as we are assured has been the case in the present instance, good alone will result.

We do not undertake to give to our readers an analysis of all or of any of the forty-four essays, reports, and discourses contained upon these five hundred and fifty closely printed pages. But we cordially commend these Transactions to the attention of every one interested in public hygiene, to the very large and constantly increasing class having at heart the sanitary welfare of the community. The titles under which the various elaborate essays are grouped in the present volume will show how broad is the ground on which these investigators are working; there are eleven papers under the topic Public Health Care and General Physical Conditions relating to Hygiene; eight essays and discourses pertain to Educational and Physiological Subjects affecting Health; Sanitary Engineering, Drainage, Sewerage, and Cleansing comprise nine reports and communications; Hospitals and the Sanitary Care of Contagious and Infectious Diseases include ten specially valuable papers; and there are two reports upon the Yellow Fever as it has occurred in Florida in recent years. It will be seen that with such a variety of topics handled in so many different ways and elaborated in so many directions, these Transactions assume the character of an encyclopædia of sanitary science. There is hardly a subject pertaining to public hygiene which has not been discussed in one or the other of these volumes.

Another feature, which is noteworthy, is the diversity in the professional character of the contributors to the work. Naturally the medical profession has the first place in number and influence; but physicians are very far from enjoying a monopoly of importance in this field of labor. The clergyman, the lawyer, the engineer, the chemist, the publicist, the veterinarian — all these, are represented in these volumes. We regard it as particularly gratifying that this association enlists so many and such various elements; it demonstrates the catholic character of state medicine, its comprehensive purpose, and its practical aims.

This volume, uniform with the first in the series, is printed and bound in the unexceptionable manner which marks all the work of the Riverside Press.

THE REFORM OF THE CORONER SYSTEM.

The rottenness of this system, and the worse than doubtful character of some of those holding the position of coroner, are becoming so evident that we are very hopeful that a reform is at hand. The movement for reform is

spreading and gaining strength rapidly. On the 21st of this month the question was discussed by the Health Department of the Social Science Association at a meeting which many distinguished gentlemen, not members, were invited to attend. An admirable paper was read by Theo. H. Tyndale, Esq., of the Suffolk Bar. After showing, as we have already done, that the system is an anachronism, and a very dangerous one, he gave an abstract of the laws. We will refer to but a few points. Though appointed by the governor and council, a coroner can be removed only by an address of both houses of the legislature to the governor. If the six jurors who are summoned do not appear, the coroner can fill the number from the by-standers. Thus it is evident that with a little skill he can have precisely the jury he wants. By the consent of the majority of this jury he can make the inquest a secret one. He can take charge of the property upon or near the person of the deceased, and yet he gives bonds for only $500. After alluding to the ease with which appointments are procured, and to the fact that there is no law limiting their number, Mr. Tyndale gave the following statistics: "London with its enormous population has *four* coroners; New York with a population three times that of Boston has *four*, with one medical deputy each; Brooklyn with a population one third to one half greater has *two;* Philadelphia, New Orleans, and Chicago, *two* each; San Francisco, Baltimore, Washington, and Cincinnati, but *one* each; a total of *twenty-four* (counting the deputies) for all these large cities taken together. Suffolk County, consisting chiefly of Boston, has *forty-seven* coroners, of which the city of Boston has *forty-three*, almost twice as many as all the above-named cities combined." He then showed how easily a corrupt or timid coroner might aid the escape of a criminal, and continued as follows: "But if he may thus on the one hand shield the guilty and endanger the public safety, on the other the opportunities for a man prompted by malice or vindictiveness or the desire of cheap notoriety are enough truly to make us tremble. With full judicial powers of examination and commitment, with his chosen constable selecting his own jury, with supreme control of the investigation, which with the consent of part of his jury he may make secret, with the selection of his medical witness, and the power to summon and hear or omit and exclude whomsoever he will, uncontrolled by superior authority, and responsible, practically, to no one for his action, he may bring ruin upon a life, or cloud and embitter it, throwing suspicion on the character of the living and blackening the memory of the dead; he may oppress and harass a stricken household without cause and without justification; he may make an inquest, in the worst sense of the word, an inquisition." The plan which Mr. Tyndale proposes as a substitute for the present miserable system appears to us a very excellent one. He would do away altogether with juries which are utterly useless except in very exceptional cases. They are as a rule mere figure-heads, and are liable to be worse. He would divide the office of coroner into two, a medical and a legal one. The holder of the former should inspect the body and make the autopsy, that of the latter should conduct the inquest, and be at liberty to insist upon one. We agree entirely with Mr. Tyndale that two such medical officers would be enough for Boston, and that by this plan the office could be rescued from the present contempt. He would have the

work entailed by the legal office, performed by the judges of the district and municipal courts. We must be permitted to quote one more extract to show the practicability of the plan: "There were held in Boston during the year ending April 30, 1876, one hundred and ten inquests and four hundred and twenty-three views, costing the city the sum of $10,769.74. This expenditure included for medical examinations $1790, for chemists $170; and this with the $4000 or more paid to jurors, constables, and scribes would give enough to pay good salaries to two competent medical officers; and when you consider that no new judge is needed you have another $3500 at your disposal. The number of views and inquests just mentioned is so largely in excess of the published facts as to give ground for the supposition that practices may prevail which under a competent and responsible medical officer would not occur, and thus the number would perhaps be materially reduced."[1]

The discussion which followed this excellent paper was opened by the Hon. Emory Washburn, who remarked that he doubted the necessity of retaining the office of coroner at all, and he favored the abolition of the jury in any case. He regarded the present system as very prejudicial to the interests of justice. Dr. Cotting favored Mr. Tyndale's suggestion, and wished that the medical officers should be appointed by the governor and council on the recommendation of the Massachusetts Medical Society. Dr. Richardson remarked that there should be a simpler means of dismissing coroners for cause than the present one. This indeed is very important, and we trust will be incorporated in whatever measure may be adopted. A committee was appointed to represent the facts to the governor of the State, and to consider their publication.

Here is occasion for great congratulation. The Social Science Association is doing good service to the public by taking up this matter, which has been too long neglected. It is very gratifying to us to see the distinguished gentlemen who are taking part in the movement to which we are fully committed. It is not professional dignity alone that demands the reform; it is called for in the name of public decency, and for the protection of the innocent and helpless. We cannot believe that the iniquity will be longer endured, and we trust that with other "old shapes of foul disease" the New Year bells will "ring out the coroner system."

MEDICAL NOTES.

— We take the following from the report of the Secretary of the Treasury: The Supervising Surgeon General reports that a larger number of seamen have availed themselves of the benefits of the Marine Hospital service during the fiscal year 1876 than in any previous year of the existence of that service. Increased facilities are afforded for obtaining relief, and many of the seafaring who are injured or taken sick at places where it is impracticable to provide proper care are sent to the nearest relief port at the expense of the service. Relief is now furnished at ninety-one ports, and 16,801 seamen received care

[1] We are requested by Mr. Tyndale to state that he wishes to acknowledge his indebtedness in the preparation of this paper to the admirable address of Mr. Herschell, Q. C., M. P., to which we have already referred.

and treatment during the year just closed. The expenditures from the fund contributed by the seamen amounted to $439,151.13. The necessary repairs to the hospital buildings, and the furniture, fuel, lights, and water for the same were in 1876 for the first time paid out of the fund. The marine hospitals at Mobile, Ala., and Louisville, Ky., which were leased at the close of the war, were refitted and again opened for the exclusive use of seamen, on September 1, 1875, and January 1, 1876, respectively. The Cleveland Hospital, on the other hand, has been leased under the act of March 3, 1875. The magnitude of the service at New York would seem to warrant the establishment of a hospital at that port for the exclusive use of seamen. The Supervising Surgeon General represents that great embarrassment arises from the frequent attempts to break down the provision of the Marine Hospital service regulations requiring a practical preliminary examination into professional qualifications of candidates for appointment to the corps of surgeons. The seamen whose earnings are taxed for the especial purpose of creating a fund for their relief when sick or disabled are certainly entitled to the best medical and surgical skill, and manifestly none other should be employed. It is therefore suggested that legislative provision be made for the examination of medical officers of that service, similar to that now existing for medical officers of the army and navy. Of the hospital dues collected from seamen, $344,670.78 were converted into the treasury during the year. For twenty successive years, up to June 30, 1874, the annual deficiency appropriations made by Congress, and expended, averaged $182,452, but no deficiency appropriation has been asked for this service since 1873, and none will be required for the year 1878.

LETTER FROM NEW YORK.[1]

Messrs. Editors, — The flooring in the whole hospital, wards, halls, etc., is tiling laid in cement, from the basement to the smallest room in the mansard roof, in every little closet, and under the wash-basins; and in fact wherever it is possible to place a tile you find one. While there are no doubt many advantages in this kind of flooring, it does not seem to be the proper material for the wards; it makes them noisy, cold, and gives them a cheerless look; they will have to lay some kind of carpeting around the beds (perhaps Turkey rugs) for patients to stand on, and this will be worse than having wood flooring, as far as affording a nidus for infection is in question; but of course it is more elegant.

The halls in the centre of each story are fourteen by twenty-four feet, with a southern exposure. I understand that it is intended to use them as sun-rooms; one cannot but think that it would have been better to have built a room for this purpose, as it has always been considered a disadvantage to allow patients to lounge in the halls.

Over each bed there is an electric signal connected with a gong in the nurses' room. Just above this is a gas bracket, and above are two staples from which a crane can be hung, either to raise a patient from the bed, or to suspend a limb. I should add that the brackets are made to order and are of *gilt*.

[1] Concluded from page 744.

The fifth story is the first in the mansard roof. On the right or west side is a ward of the same size as the other, but with a lower ceiling; the windows are double, and there are not so many of them. This, I understand, is to be used as the main surgical ward. Opposite, on the other side of the main hall, is a passage-way leading to the operating theatre. On the right are two rooms, one for the administration of ether, the other to be used for a recovering room. The passage-way terminates in an open space leading by a door into the theatre, and by an iron staircase into the amphitheatre. The operating room is forty-eight by thirty; it is well lighted on the north side by a window twenty feet wide, extending up to the roof, where it is met by a sky-light of the same width, which extends on to the roof some fifteen feet, thus giving the operator an abundance of good light.

The seats for spectators are arranged in a semicircle, one above the other, and will probably accommodate one hundred and fifty or two hundred persons. On the posts at either end of the semicircle of seats calcium lights are to be placed, so that by the aid of a mirror a strong light can be thrown into any cavity. The theatre is well provided with gas-burners, so as to afford an abundance of light by night. The instruments are to be placed in the further end of the theatre in a case having a large plate-glass sliding door. In the spaces left in the corners behind the seats are two rooms; one is fitted up as a toilet room, and the other for apparatus. The operating theatre is to have every convenience in the way of water, etc., that it is possible to devise, and is connected with the etherization room by speaking-tubes. On this floor is a room sixteen feet square, which can be used as an isolating ward. This is the highest story over the wards, but the main building is carried up two stories more. In the sixth story, the second in the mansard roof, is the general kitchen of the hospital, fitted up in the very best manner with every convenience. It is connected with each ward dining-room by a steam elevator. Beyond the kitchen on the eastern end of the building is the drying room for the washing, heated by steam-pipes. Next to this is the ironing room. The upper story in the top of the roof is the washing room, and contains three steam washing machines, etc., besides several large tanks. It seems rather small for the purpose, and not in keeping with the other arrangements of the house. It has, however, as handsome tiling on the floor as there is in any other part of the hospital. It is connected with the drying room below by a slide. On this story is what is called the super-heating room, containing an iron box large enough to receive a bed and bedding. It is closed tight and raised to 250° for the purpose of disinfecting. There is also a fan nine feet in diameter run by an independent engine to draw the air from the foul-air shafts to which reference will presently be made.

The building is finished in maple, highly polished, and the wooden door-frames are just thick enough to hold the hinges. The walls are lined with cubes of asbestos, and over this the plastering is placed. All partitions are made in the same way; there is no lathing in the building. The staircases are of stone, and are placed at the back of the halls, behind the elevator, and are about six feet wide; they are badly lighted. The whole building is heated by steam. We miss fire-places in the wards; they not only add to the cheerful-

ness, but would aid much in ventilation, in case the elaborate system which has been adopted should not work quite satisfactorily. As the plans of heating and ventilation are so intimately connected it will be well to describe them in this place. In the cellar is a series of air-boxes containing steam-pipes connected with a fan nine feet in diameter, to force the hot air into the wards through pipes inclosed in the wall. The hot air enters the wards through an aperture about one inch wide and twenty-four inches long, placed in each window-sill, about three feet and a half from the floor; there are, therefore, twenty of these in each ward. The rooms other than wards have common steam heaters. Between each window, and so placed that it will be behind each bed, is a foul-air register, situated about eighteen inches from the floor, and opening into a foul-air shaft running directly up to the top of the building, and receiving from corresponding places in each ward the foul air from similar registers. At the top of each wing of the building, and extending its whole length, is a large collecting pipe, into which each of these foul-air shafts in the wall enters, and the foul air thus collected is conveyed into a receiver placed at the top of the main building in the mansard roof, where a fan similar to the one in the cellar is placed, to draw it upwards. About three feet from the wall, and perforating the flooring corresponding to the position of each bed, is an iron pipe five inches in diameter, which takes a sudden turn, and running under the floor passes into the main foul-air shaft just below the register. There are eleven of these on one side and nine on the other.

At the angle between the wall and the ceiling is another ventilating register connecting with the same shaft; there is one of these in each of the spaces between the windows. These are for use in summer only, to assist in keeping the wards cool. The foul-air shafts are heated by steam-pipes, to aid the draught. The following seems to be the plan of ventilation. The cold air is taken in on either side of the vestibule in the front of the building, about twenty-one feet from the pavement, in order to escape any miasm from the ground; it is then drawn into the steam-chests in the cellar, and from thence forced into the wards through the apertures in the window-sills. It should have been noted that the inclination of the supply tube is such that the hot air is forced upwards and inwards towards the middle of the ward. From the force with which it is projected it is supposed to meet the current from the opposite side and mingle with it, and then be drawn downwards into the register near the floor by the draught in the foul-air shaft, aided by the fan in the roof. The heavier foul gases are supposed to be carried away through the iron pipe under the beds. The only means of getting fresh air into the wards is through the hot-air pipe in the windows. The above plan of ventilation rests upon the theory that in an air-tight room you can keep the air pure by forcing in fresh warm air three feet from the floor, and by drawing it out at the bottom, provided you can furnish sufficient exhausting power above. Now a ward is not an air-tight room in any sense of the word, and it remains to be seen how pure the air can be kept by this method. The heating and ventilating apparatus has been no small item of expense, and in case it is not found to work well it will leave the hospital in rather a bad position. In summer it is intended to keep the wards cool by the same means, with the upper ventilators open.

The plumbing is all exposed, so that in case there is any leakage it can be readily found. It has been done not only in the best but in the most expensive manner. The post-mortem room is built on the west side, beyond the extension, and is connected with the dead house by a passage-way, and with the executive story by another hall passing over the dead house. The room itself is twenty-five feet square, and is abundantly supplied with light from a glass front and sky-light.

The table is similar to that used in the Massachusetts General Hospital except that it is on scales. The ventilating flue for the table is the main shaft from the furnaces. The room is also ventilated by eight registers connected with the same shaft. The seats for spectators rise one above another, and will accommodate about fifty persons. There is a toilet room on one side; on the other is a small room provided with a soap-stone tub into which a body can be placed and injected, it is also to be furnished with an Aligrete refrigerator for keeping specimens. After the hospital was almost finished it was found that no accommodations had been provided for the help. The executive building has been raised two stories. The first story in the new part is for the help, and the upper has been made into a recreation room, being divided for males and females. The solicitude of the governors to take every precaution against fire seems to have vanished when they turned from the hospital to the executive building, for if there ever was a tinder-box placed in a house the new part of this building is one. It is made of southern pine throughout, and is heated by steam. Below it is one of the most valuable medical libraries in the country, which should have been guarded as carefully as possible from all danger of fire, yet they have placed over it sleeping apartments for the help, who are not of the most trustworthy class, and if some accident does not happen it will not be because those who have been superintending the hospital made any provision to guard the library. The hospital is connected with the executive building by two iron passage-ways.

In going over the hospital one cannot help noticing the expensive and elaborate way in which everything has been done. No expense has been spared in any of its departments. One of the most problematical things about it is the ventilation; it is certainly elaborate, but, if I mistake not, the experience in hospitals heretofore has been that the more elaborate the plan of ventilation, the greater has been its failure. If it fails here the hospital is a failure, for it will be impossible to substitute any other mode of heating and ventilation without almost rebuilding. In planning the building the board seem to have had this problem to solve: given a space of ground, one hundred and seventy-five feet by eighty feet, what plan can be adopted that will *handsomely* cover this amount of space? That a great amount of money has been expended on the hospital that will not add one iota to the comfort of the patients or afford the least aid in furthering a favorable issue, no one can deny. Plate and stained glass windows, electric signals, and gas-lights over each bed, are only samples of the ways in which money has been uselessly spent.

There is not an inch of ground unoccupied about the hospital except a small space in front of and at the side of the executive building, where a fence is being placed so as to keep patients away from even this space. If conva-

lescents wish to take out-of-door exercise they must go into the street. When the abandonment of the old New York Hospital was under consideration a proposition was made to lease a portion of the grounds, not actually needed, for business purposes, from which an ample fund could have been derived; but no, the majority of the board refused it on *sanitary* grounds, saying that it would be depriving the patients of breathing space and would not give convalescents any place for out-of-door exercise. The short space of four years seems to have wrought a change in the opinion of these same gentlemen on sanitary laws; those who then thought that nothing less than a city block was space enough in which to build a hospital now pride themselves on an institution without an inch of unoccupied ground about it. Truly, consistency is a jewel.

COMPARATIVE MORTALITY-RATES FOR THE WEEK ENDING DECEMBER 16, 1876.

	Estimated Population, July 1, 1876.	Total Mortality for the Week.	Annual Death-Rate per 1000 for the Week.	Death-Rate for the Year 1875.
New York	1,061,244	467	22.88	29.35
Philadelphia	825,594	316	19.90	22.24
Brooklyn .	506,233	204	20.95	24.92
Chicago . .	420,000	158	19.59	19.75
Boston . .	352,758	144	21.23	26.20
Providence	101,500	44	22.54	19.02
Worcester .	51,087	14	14.25	20.91
Lowell . .	51,639	30	30.21	20.55
Cambridge	49,670	15	15.70	23.31
Fall River	50,372	14	14.45	23.99
Lawrence .	36,240	10	14.35	25.96
Lynn . .	33,548			19.23
Springfield	32,000	2	3.25	20.93
Salem . .	26,344	15	29.61	22.92

Normal Death-Rate, 17 per 1000.

Dr. Martin & Son wish it to be distinctly known that the "vaccine virus" used by Dr. Adams, in the cases reported in the Journal last week, was not obtained from them or either of their agents.

A meeting of the Boston Society for Medical Observation will be held on Monday evening next, at its rooms, 36 Temple Place, at eight o'clock. A Case of Hip Disease will be reported by Dr. C. P. Putnam.

Suffolk District Medical Society. — The regular meeting will be held at the rooms, 36 Temple Place, December 30th, at seven and a half o'clock. The following papers will be read: —

Dr. T. M. Rotch, A Letter from Vienna.

Dr. A. Day, Inebriety and its Cure.

Errata. — Page 727, seventh line from the bottom, "fluid ounce" should read, "fluid drachm."

Page 728, eighth line from the top, "an ounce" should read, "a drachm."